

REMARKS

Claims 1-11, 14-23, 25-28 and 30-34 are currently pending in the present patent application, with claims 5, 17-23, 25-28, 31, 33, and 35 having been withdrawn.

In an Office Action mailed 4 April 2006, the Examiner rejected claims 1-4, 6-11, 14-15, 30, 32, and 34 under 35 U.S.C § 102(b) as being clearly anticipated by U.S. Patent No. 6,184,478 to Imano *et al.* ("Imano").

Claim 1 recites a circuit board including a signal conductor and a conductive plane having an opening, wherein dimensions of the opening and proximity of the opening to the signal conductor are selected to affect an impedance of the signal conductor. A plurality of unequally spaced bridging portions of the conductive plane electrically couple the conductive plane across the opening. These portions have widths dimensioned to provide a current pathway that presents a negligible impedance discontinuity to a signal flowing generally parallel to the opening.

The Imano patent is directed to a printed wiring device including insulation layers 20-24 with a ground layer 11, power supply layer 31, and signal layers 27-30 positioned between the insulation layers as shown in Figure 2(b). Imano includes holes 12 (see Figure 1) in the power supply layer 31 and ground layer 11, with the holes positioned across from adjacent signal lines 27-30 to reduce a capacitance and thereby an impedance associated with the signal line. This enables a height of each of the insulation layers 20-24 to be reduced without undesirably increasing the impedance of the signal lines 27-30 and without requiring a width of the signal lines be reduced in proportion to the reduction in the height of the insulation layers.

Figure 1 of Imano illustrates one embodiment for the arrangement of the holes 12 in the ground layer 11. Figures 3(a) and 3(b) illustrate the arrangement of a signal line 40 overlying the holes 12 in the ground layer 11. The arrangement of the holes results in a regular disposition in heretofore relative to the signal line 40, as described in column 3 lines 40-49. Similarly, alternative embodiments for the holes 12 are shown in Figures 4 (a)-(c) and these too are shown as being repeating and symmetrical patterns relative to the edges of the ground plane 11 in which the patterns are formed. Figure 5 illustrates another embodiment in which holes 51 formed in a ground layer 50 are formed in a regularly spaced pattern only opposite signal lines 52.

Imano neither discloses nor suggests a plurality of unequally spaced bridging portions of the conductive plane that electrically couple portions of the conductive plane across the opening. Figure 2A illustrates one embodiment covered by claim 1 where a bridging conductor 64 is illustrated. In an embodiment covered by claim one, the bridging conductors 64 along an opening 62 in the plane 60 are unequally spaced, contrary to any of the embodiments are disclosure in Imano. In fact, as previously mentioned with reference to column 3, lines 40-49, Imano is directed to patterns of openings that are symmetrical relative to an associated signal line. This discussion and illustration of only these embodiments may in fact be said to teach one skilled in the art away from any patterns that are not so symmetrical relative to associated signal lines. This is not the case with the signal conductor and conductive plane recited in claim 1. While the arrangement of the Imano may be desirable in many situations so that the signal line presents consistent impedance throughout a length of the line, in other situations unequally spaced bridging conductors relative to the conductive plane may be advantageous.

For these reasons, the combination of elements recited in claim 1 is allowable. Dependent claims 2-11 and 14-16 are allowable for at least the same reasons as claim 1 and due to the additional limitations added by each of these claims.

Independent claims 17, 25, 26, 28, 30, 31, 33, and 34 are allowable for reasons similar to those discussed above with regard to claim 1. The associated dependent claims are allowable for at least the same reasons as each corresponding independent claim and due to the additional limitations added by each of these dependent claims.

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The present patent application is in condition for allowance. Favorable consideration and a Notice of Allowance are respectfully requested. **If, after considering this response, the Examiner does not agree that all of the claims are allowable, he is requested to schedule a teleconference with the Applicant's attorney to further the prosecution of the application.**

DATED this 4th day of August, 2006.

Respectfully Submitted,
GRAYBEAL JACKSON HALEY LLP

A handwritten signature in black ink, reading "Paul F. Rusyn". The signature is stylized with large, flowing loops and a long, sweeping underline.

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